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Wildlife Use of Shelterbelts Near Lyleton, Manitoba

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ABSTRACT

Between 1937 and 1960, nearly 600 kilometers of shelterbelts were planted in southwestern Manitoba. Little information is available on the use of these areas by wildlife species. On June 22-24, 1982, songbird surveys were completed along 13.5 kilometers of shelterbelts near Lyleton, Manitoba. Other wildlife surveys were undertaken on 12 farmsteads with tree plantings. Forty-seven species of birds are associated with southwestern Manitoba shelterbelts. Species diversity was directly proportional with shelterbelt thickness, height and frequency. Where shelterbelts were at right angles to other plantings, bird numbers and species diversity were enhanced. In this intensively cultivated area furbearers and mammalian prey species, including white-tailed deer (Odocoileus virginianus), use shelterbelts for food and cover.

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WILDLIFE USE OF SHELTERBELTS NEAR LYLETON, MANITOBA

INTRODUCTION

Southwestern Manitoba has been developed largely for intensive agriculture. Within this agricultural matrix practically the only areas of wildlife habitat are shelterbelts. Between 1937 and 1960 nearly 600 kilometers of trees were planted (more than 2.5 million seedlings came from the Indian Head Tree Nursery in Saskatchewan) to reduce soil erosion, catch snow, and generally reduce wind velocities near the ground. These aspects of shelterbelt benefits are still recognized as important by the Department of Agriculture.

In recent years, however, many kilometers of shelterbelts have been removed to facilitate the mobility of large farm machinery. Shelterbelts also use up considerable soil moisture, occupy space capable of producing crops, and in many areas are overmature.

In summer 1982, Biological Services provided a university grant for Valerie Sutton, an N.R.I. student attempting to determine present local farmer attitudes (in the Lyleton area) toward shelterbelts. Stimulated by that study I assessed the wildlife values of shelterbelts and inventoried the wildlife inhabiting shelterbelts.

Methods

This survey was done during the breeding season for most bird species recorded. The use made of shelterbelts during spring and fall migration periods and winter was not assessed.

On June 22-24, 1982, songbird surveys were conducted along shelterbelts in the Lyleton area. Stops along road and field shelterbelts were made at 0.16 kilometer intervals between 0550 and 0800 hours. Each stop was for approximately five minutes. After morning surveys, observations were made in a number of both occupied and deserted farmsteads.

Shelterbelts were divided into four categories according to thickness, species of tree and height of tree. Type A : Shelterbelts with an overstory of (usually mixed) Manitoba maple, ash, carrigana, elm, willow, or cottonwood 5-10 meters tall, with an understory of carrigana, chokecherry, Manitoba maple, willow or snowberry. These areas were 3-6 meters wide and dense enough to block vision at the 1.5 meter height level. Type B: Shelterbelts with little or no understory. Often the trees were widely separated, but in all cases they were 3-8 meters tall. Typical trees of this type included Manitoba maple, ash, elm, cottonwood or willow. Type C: shelterbelts restricted to fairly dense carrigana rows 4-5 meters tall. This type included 4.2 kilometers of ungrazed vegetation. Type D: special areas, of which four are included. Farmsteads and areas of uncommon vegetation types typify this classification.

RESULTS

Songbird species heard, and their frequency for 6.1 kilometers of type A shelterbelts surveyed, are summarized in Table 1. This survey averaged 8.4 bird species per stop with a total of 38 species recorded. A number of species did not use shelterbelts directly but were active in adjacent areas.

Songbird species heard, and their frequency within type B shelterbelts, is shown in Table 2. Type B shelterbelts were surveyed over a 3.2 kilometer distance in which 20 species of songbirds were recorded for an average of 8.6 species per stop. Table 3 summarized use of this type C shelterbelts. Twenty-eight species of birds were recorded. An average of 7.3 bird species was identified per stop.

Type D contains four types of Lyleton area shelterbelts:

1. Just north of Lyleton is an old experimental farmsite. This area has a row of 8-meter tall elms on either side of the driveway. The lower branches of the elms had been pruned up to four meters or more in height. Table 4 lists the birds observed in the elms.

2. Several farmyards and the park in town contained blue spruce trees. These trees appear especially attractive to chipping sparrows and common grackles.

3. Song sparrows were often associated with mature willows and cottonwoods near dugouts or ditches containing wet areas. In a wet area southeast of town there was a shelterbelt of large willows 4-8 meters tall. This area contained a dense population of warbling vireos. The following bird list comes from 0.5 kilometers of this habitat type.

Warbling Vireo
House Wren
American Goldfinch
Mourning Dove
Gray Catbird
Red-winged Blackbird
Western Meadowlark
Brown-headed Cowbird
Cedar Waxwing
Eastern Kingbird
Ring-necked Pheasant
Northern Oriole
Yellow Warbler
Common Yellowthroat

Table 1. Songbird use of type A shelterbelts near Lyleton, Manitoba.

Bird Species	% of stops bird species recorded
Red-winged Blackbird	69
Brown-headed Cowbird	63
Western Meadowlark	61
Mourning Dove	55
Clay-colored Sparrow	53
Vesper Sparrow	53
House Wren	50
Eastern Kingbird	40
Warbling Vireo	40
Northern Oriole	34
Black-billed Cuckoo	26
Gray Catbird	23
Common Crow	21
Yellow Warbler	18
Least Flycatcher	16
American Robin	16
Song Sparrow	16
Horned Lark	16
American Goldfinch	16
Black-billed Cuckoo	13
Common Grackle	13
Ring-necked Pheasant	13
Gray Partridge	13
Common Flicker	11
Brown Thrasher	11
Blue Jay	11
Barn Swallow	11
Common Yellowthroat	8
Bobolink	8
Killdeer	8
Cedar Waxwing	8
Song Sparrow	8
Chestnut-collared Longspur	3
Black-capped Chickadee	3
Common Starling	3
House Wren	3
White-breasted Nuthatch	3
Loggerhead Shrike	3

Table 2. Songbird use of type B shelterbelts near Lyleton, Manitoba.

Bird Species	% of stops bird species recorded
Red-winged Blackbird	75
Mourning Dove	75
Horned Lark	75
Vesper Sparrow	75
Western Meadowlark	65
House Wren	60
Brown-headed Cowbird	60
Northern Oriole	45
Clay-colored Sparrow	45
Warbling Vireo	30
Common Crow	30
American Goldfinch	30
Common Grackle	30
Gray Catbird	25
American Robin	25
Cedar Waxwing	20
Brown Thrasher	15
Killdeer	10
Eastern Kingbird	10
Hairy Woodpecker	10
Barn Swallow	10
Black-billed Cuckoo	10
Boblink	5
Tree Swallow	5
Chesnut-collared Longspur	5
Western Kingbird	5
White-breasted Nuthatch	5
Yellow Warbler	5
Common Flicker	5
Great Horned Owl	5

Table 3. Songbird use of type C shelterbelts near Lyleton, Manitoba.

Songbird Species	% of stops bird species recorded
Vesper Sparrow	85
Mourning Dove	81
Red-winged Blackbird	62
Western Meadowlark	62
Brown-headed Cowbird	58
Common Crow	54
Horned Lark	50
House Wren	38
Clay-colored Sparrow	35
Black-billed Cuckoo	35
Eastern Kingbird	35
Common Yellowthroat	23
Gray Catbird	15
Common Grackle	15
Cedar Waxwing	12
Barn Swallow	12
Northern Oriole	8
American Goldfinch	8
American Robin	8
Bobolink	8
Brown Thrasher	4
Yellow Warbler	4
White-breasted Nuthatch	4
Killdeer	4
Black-billed Magpie	4
Savannah Sparrow	4
Black-capped Chickadee	4
House Sparrow	4

Table 4. Songbirds active in a row of mature elms near Lyleton, Manitoba.

American Robin *
Warbling Vireo *
House Sparrow *
Northern Oriole*
Mourning Dove *
Eastern Kingbird*
House Wren
Orchard Oriole
Common Grackle
Common Crow
Cedar Waxwing
American Goldfinch

* Species for which nests were found.

4. Farmsteads often contained several rows of various tree species. These areas were extremely productive, especially where old buildings were still present on abandoned farmsteads. Old buildings enhance these areas for swallows, phoebes and wrens. Seven abandoned farmsteads were surveyed as were five occupied farmsteads. The 54 species contained in Table 5 come from this survey. The rose-breasted grosbeak and eastern wood peewee were from an area backing onto a branch of the Antler River where three of the surveyed farmsteads were located.

A number of grassland species (listed below) appear to be loosely associated with shelterbelts. The visual blocks and song perches found in shelterbelts may be significant to several species. The consistency of the shelterbelts both height and density may be important factors.

Clay-colored Sparrow	Chestnut-collared Longspur	Western Meadowlark
Vesper Sparrow	Bobolink	
Savannah Sparrow	Horned Lark	
Lark Sparrow	Upland Sandpiper	

DISCUSSION

Numerous species of songbirds benefit from the presence of shelterbelts. Not only do birds derive direct benefit, but indirect features such as visual blocks, wind and sound disruptions are important to many species, some of which never enter the cover of shelterbelts.

Bird species use, densities and composition relate to a number of vegetative factors including shelterbelt height, diameter, density, type of field use and tree species composition. The pattern of shelterbelt distribution is a significant factor in songbird use of shelterbelts. If birds can easily fly from one sheleterbelt

Table 5. List of birds found in farmsteads June 22-24, 1982, near Lyleton, Manitoba.

Gray Partridge
Ring-necked Pheasant
Rock Dove
Mourning Dove
Black-billed Cuckoo
Screech Owl
Great Horned Owl
Ruby-throated Hummingbird
Common Flicker
Yellow-bellied Sapsucker
Hairy Woodpecker
Downy Woodpecker
Eastern Kingbird
Western Kingbird
Eastern Phoebe
Say's Phoebe
Least Flycatcher
Eastern Wood Peewee
Tree Swallow
Barn Swallow
Cliff Swallow
Purple Martin
Blue Jay
Black-billed Magpie
Common Crow
Black-capped Chickadee
White-breasted Nuthatch
House Wren
Gray Catbird
Brown Thrasher
American Robin
Eastern Bluebird
Cedar Waxwing
Loggerhead Shrike
Common Starling
Yellow-throated Vireo
Red-eyed Vireo
Warbling Vireo
Yellow Warbler
Common Yellowthroat
Chestnut-sided Warbler
House Sparrow
Red-winged Blackbird
Orchard Oriole
Northern Oriole
Brewer's Blackbird
Common Grackle
Brown-headed Cowbird
Rose-breasted Grosbeak
American Goldfinch
Le Conte's Sparrow
Vesper Sparrow
Song Sparrow
Chipping Sparrow

to another or if the field shelterbelts abut road shelterbelts, there is a much greater density of several songbird species. Visual blocks and the presence of nearby trees seem to enhance species diversity and bird densities in shelterbelts. The black-billed cuckoo, northern oriole, house wren, gray catbird, brown thrasher, American robin, and least flycatcher all illustrate this feature. Although rare on the surveys, the loggerhead shrike was more common in the Lyleton area than in any area I have visited.

Mammals using shelterbelts include the striped skunk, red fox, coyote, white-tailed deer, and deer mouse. Some loose associations exist where agricultural land use alters the productivity of habitat for a given mammal species. This instability of cultivated habitats has resulted in most dens and areas used for hibernation occurring in shelterbelts or around farm buildings. Some other mammals associated with shelterbelts include the thirteen-lined ground squirrel, woodchuck, porcupine, white-tailed jack rabbit, least chipmunk, and raccoon. Numbers of all these species vary according to cycles and local conditions so no particular estimates of numbers or use was made. (The white-tailed jack rabbit population was dense near Lyleton in June, 1982).

More information on the local Lyleton avifauna can be found in R. W. Knapton's " Birds of the Gainsborough-Lyleton region." 72pp. 1979. Spec. Publ. No. 10, Sask. Natural Hist. Soc., Regina, Sask. For more information on songbird use of shelterbelts see: R. H. Knapton's " Birds of the Gainsborough-Lyleton region." 72pp. For more information on songbird use of shelterbelts see: R.H. Yahner's "Avian use of vertical strata and plantings in farmstead shelterbelts." J. Wild. Manage. 46:50-60.